AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

1. (**Withdrawn**) A process for producing recombinant cytokine comprising producing a gene recombinant silkworm that incorporates cytokine gene in its chromosomes, producing recombinant cytokine protein in the silk glands or cocoon and silk thread of the resulting gene recombinant silkworm, and recovering the cytokine from the silk glands or cocoon and silk thread.

2. (**Withdrawn**) A process for producing recombinant cytokine according to claim 1 wherein a cytokine gene coupled downstream from a promoter specifically expressed in silk glands is incorporated in a chromosome.

3. (**Withdrawn**) A process for producing recombinant cytokine according to claim 2 wherein the promoter specifically expressed in silk glands is a sericin gene promoter.

4. (**Withdrawn**) A process for producing recombinant cytokine according to claim 2 wherein the promoter specifically expressed in silk glands is a fibroin H chain gene promoter.

5. (**Withdrawn**) A process for producing recombinant cytokine according to any of claims 1 through 4 wherein cytokine gene is incorporated in silkworm chromosomes using DNA originating in a transposon.

6. (**Withdrawn**) A process for producing recombinant cytokine according to claim 5 wherein the cytokine gene is located between a pair of inverted terminal sequences originating in a transposon.

7. (**Withdrawn**) A process for producing recombinant cytokine according to claim 5 or 6 wherein the DNA originating in a transposon originates in an insect.

8. (**Withdrawn**) A process for producing recombinant cytokine according to claim 7 wherein the transposon originates in piggyBac transposon originating in a lepidopteron.

9. (**Withdrawn**) A process for producing recombinant cytokine according to any of claims 1 through 8 wherein the cytokine gene is interferon gene or colony stimulating factor gene.

10. (**Withdrawn**) A process for producing recombinant cytokine according to claim 9 wherein the interferon gene or colony stimulating factor gene is feline interferon-ω gene, human interferon-β gene or feline granulocyte colony stimulating factor gene.

11. (**Withdrawn**) A process for producing recombinant cytokine according to any of claims 1 through 3 wherein cytokine is extracted from cocoon and silk thread by using an aqueous solvent.

12. (**Withdrawn**) A gene recombinant silkworm in which a cytokine gene has been inserted into a chromosome and cytokine is produced in silk glands or cocoon and silk thread.

13. (**Withdrawn**) A gene recombinant silkworm according to claim 12 wherein the cytokine gene inserted into a chromosome is an interferon gene or colony stimulating factor gene.

14. (**Withdrawn**) A gene recombinant silkworm according to claim 13 wherein the interferon gene or colony stimulating factor gene inserted into a chromosome is feline interferon-ω gene, human interferon-β gene or feline granulocyte colony stimulating factor gene.

15. (**Withdrawn**) A vector for inserting an exogenous gene into silkworm chromosomes in which a cytokine gene is coupled downstream from a promoter that is specifically expressed in silk glands.

16. (**Withdrawn**) A vector for inserting an exogenous gene into silkworm chromosomes according to claim 15 wherein the promoter is sericin gene promoter.

17. (**Withdrawn**) A vector for inserting an exogenous gene into silkworm chromosomes according to claim 15 wherein the promoter is a fibroin H chain gene promoter.

18. (**Withdrawn**) A vector for inserting an exogenous gene into silkworm chromosomes according to any of claims 15 through 17 wherein the cytokine gene is located between a pair of inverted terminal sequences originating in a transposon.

19. (**Withdrawn**) A vector for inserting an exogenous gene into silkworm chromosomes according to any of claims 15 through 18 wherein the cytokine gene is an interferon gene or a colony stimulating factor gene.

20. (**Withdrawn**) A vector for inserting an exogenous gene into silkworm chromosomes according to claim 19 wherein the interferon gene or colony stimulating factor gene is feline interferon-ω gene, human interferon-β gene or feline granulocyte colony stimulating factor gene.

21. (**Currently Amended**) A gene cassette for expressing an exogenous protein comprising:

(1) a promoter active in *Bombyx mori* expressed in silk glands, ~~and~~

(2) a gene coupled downstream from the promoter of (1), ~~in which~~ wherein the 5' terminal portion of a fibroin H chain gene of *Bombyx mori* is fused to the 5' side of an exogenous protein structural gene, and

(3) inverted repetitive sequences of a pair of piggyBack transposons on both sides of the gene cassette comprising the promoter of (1) and the gene of (2).

22. (**Currently Amended**) A gene cassette for expressing an exogenous protein comprising:

(1) a promoter active in *Bombyx mori* expressed in silk glands, and

[[(2)]] (2a) a gene coupled downstream from the promoter of (1), ~~in which~~ wherein the 3' terminal portion of a fibroin H chain gene of *Bombyx mori* is fused to the 3' side of an exogenous protein structural gene not containing a stop codon, or ~~a gene cassette for expressing an exogenous protein comprising (1) a promoter expressed in silk glands, and (2)~~ (2b) a gene coupled downstream from (1) in which an exogenous protein structural gene is fused to the 3' side of the 3' terminal portion of the fibroin H chain gene.

23. (**Currently Amended**) A gene cassette for expressing an exogenous protein comprising:

(1) a promoter active in *Bombyx mori* expressed in silk glands, and

(2) a gene coupled downstream from the promoter of (1), ~~in which~~ wherein the 5' terminal portion of a fibroin H chain gene of *Bombyx mori* is fused to the 5' side of an exogenous protein structural gene not containing a stop codon, and in which the 3' terminal portion of ~~fibrin~~ the fibroin H chain gene is fused to the 3' side of the structural gene.

24. (**Currently Amended**) **[[**A**]]** The gene cassette according to claim 21, **[[**or 23**]]** wherein the 5' terminal portion of the fibroin H chain gene contains a first exon, first intron and a portion of a second exon of the fibroin H chain gene.

25. (**Currently Amended**) **[[**A**]]** The gene cassette according to ~~claim 24~~ claim 23, wherein the portion where the first exon and second exon of the fibroin H chain gene are joined is a secretion signal gene region of the fibroin H chain gene.

26. (**Currently Amended**) **[[**A**]]** The gene cassette according to claim 25, wherein the promoter ~~expressed in silk glands of (1)~~ and the 5' terminal portion ~~of fibroin H chain gene coupled downstream from (1) are~~ together comprise the DNA as shown in SEQ. ID No. 22 **[[**and**]]** or SEQ. ID No. 23.

27. (**Currently Amended**) **[[**A**]]** The gene cassette according to claim 22 or 23, wherein the 3' terminal portion of the fibroin H chain gene contains at least one codon that encodes cysteine.

28. (**Currently Amended**) **[[**A**]]** The gene cassette according to claim 27, wherein the 3' terminal portion of the fibroin H chain gene is the DNA shown in SEQ. ID No. 24.

29. (**Currently Amended**) **[[**A**]]** The gene cassette according to any of claims 21 through **[[**28**]]** 23, wherein the promoter expressed in silk glands is at least one promoter selected from fibroin H chain gene promoter, fibroin L chain gene promoter and sericin gene promoter.

30. (**Currently Amended**) **[[**A**]]** The gene cassette according to any of claims 21 through **[[**29**]]** 23, wherein at least one poly A addition region selected from a poly A addition region of fibroin H chain gene, a poly A addition region of fibroin L chain gene and a poly A addition region of sericin gene is present downstream from **[[**a**]]** the gene cassette. ~~for expressing an exogenous protein according to any of claims 21 through 29.~~

31. (**Currently Amended**) A gene cassette for inserting a gene into chromosomes of insect cells comprising inverted repetitive sequences of a pair of piggyBac transposons present on both sides of **[[**a**]]** the gene cassette ~~for expressing an exogenous protein~~ according to ~~any of claims 21 through 30.~~ claim 22 and 23.

32. (**Currently Amended**) An expression vector for insect cells that contains **[[**a**]]** the gene cassette ~~for expressing an exogenous protein~~ according to any of claims 21 through **[[**31.**]]** 23.

33. (**Currently Amended**) A gene insertion vector for insect cells that contains **[[**a**]]** the gene cassette of claim 31 for inserting a gene into chromosomes of insect cells. ~~according to claim 31.~~

34. (**Currently Amended**) A process for producing an exogenous protein comprising inserting **[[**a**]]** the vector for insect cells according to claim 32 or 33 into insect cells.

35. (**Currently Amended**) **[[**A**]]** The process for producing an exogenous protein according to claim 34, wherein the insect cells originate in a lepidopteron.

36. (**Currently Amended**) **[[**A**]]** The process for producing **[[**an**]]** the exogenous protein according to claim 35, wherein the insect cells originate in silkworm moths (Bombyx mori).

37. (**Currently Amended**) **[[**A**]]** The process for producing an exogenous protein according to claim 36, wherein the insect cells are silk gland cells of silkworm moths (Bombyx mori).

38. (**Currently Amended**) A process for producing an exogenous protein comprising producing a recombinant silkworm in which **[[**a**]]** the gene cassette ~~for expressing an exogenous protein~~ according to any of claims 21 through **[[**31**]]** 23 is inserted into a chromosome using a gene insertion vector for insect cells ~~according to claim 33~~ and the DNA transfer activity of piggyBac transposase, producing exogenous protein in the silk glands or cocoon and silk thread of the resulting recombinant silkworm, recovering the exogenous protein from the silk glands or silk and cocoon thread.

39. (**Currently Amended**) [[A]] The process for producing an exogenous protein according to claim 38, wherein the recombinant silkworm, in which the gene cassette for expressing an exogenous protein has been inserted into a chromosome, is produced by simultaneously micro-injecting the gene insertion vector for insect cells and DNA or RNA that produces the piggyBac transposase into silkworm eggs.

40. (**Withdrawn**) A recombinant silkworm in which a gene cassette for expressing an exogenous protein according to any of claims 21 through 31 has been inserted into a chromosome, and which has the ability to produce the exogenous protein in silk glands or silk thread.

41. (**Withdrawn**) Silk thread containing an exogenous protein produced by a recombinant silkworm according to claim 40.